Draining the Swamp
By Bill O'Brien

There is an old saying that is used a lot in management training courses and is even stenciled on one of my son's
t-shirts. It goes like this: "When you are up to your arm pits in alligators, it is hard to remember that your original goal was to drain the swamp."
There should be no doubt that the aviation industry is a tough place to make a living, especially in the regional and large airline sector. Competition to make a buck is fierce. Some airlines have to merge to stay competitive, others hang in the game by shaving costs, like eliminating the complimentary bag of peanuts or sacrificing good people at the end of the year just to improve the bottom line for the stockholders.
But the amazing thing about this industry, at least from my side of the fence, is that for every 121 or 135 operator that goes broke, there are two more start-up airlines queuing up at the FAA Flight Standards District Office (FSDO) applying for certification to take over the previous player's routes, supremely confident they can succeed where others have failed.
So the mad cycle begins anew. As the new players enter the swamp, and the competition heats up, the new guys, just like the ones they replaced, tend to lose sight of the real goal of providing good, safe, reliable transportation for their customers. Instead, they concentrate all their energy on beating off the alligators, their competitors, and avoiding the quicksand of rising costs.
In the heat of battle they tend to overlook one of the most effective and cost-cutting tools available to each Part 121 and 135 operators. Simply put, this costsaving tool is a well run and managed, continuing analysis and surveillance system that, believe it or not, is required by the FAA (ref.: Sections 121.373, 135.431) and requires the airline to audit its own procedures and level of performance.
However, experience has shown that most of the airlines that eventually wind up being some alligator's hors d'oeurve never really used the FAA-mandated continuing analysis and surveillance program (CASP) to its full potential.
Maybe one of the causes behind this lack of commitment is the fact that many new operators mistakenly see CASP only as a long term internal audit program, where substantial costs savings are not readily noticeable in the first hectic year or two. But lately, I have come to suspect the most common reason is that both management and mechanics never understood the total impact on daily operations costs of such a program. They just see CASP as a minor bureaucratic speed bump, just one more inane block to fill during the FAA air carrier certification process. Let me see if I can "sell" both new and more established air carrier management on reevaluating the importance of their CASP.

What is casp?
Simply put, it is the FAA's version of an ISO 9000 quality control audit. CASP is a two-part, operator's self examination program that ensures that the airline maintenance program is being followed and is working as advertised.

The first part is called the audit function and it follows up on all the component removals and tear down inspections. It also looks at the airline's maintenance organizational design, supervision, how maintenance is performed, and administrative procedures. Ideally, what you want this audit to do is to actively seek and remove all the operational warts and blemishes that the maintenance organization was originally blessed with, or has picked up along the way, and no longer work.
The second part of the self audit CASP program is called the performance analysis function. This is the technical side of the program. This function monitors the daily and long term operation of aircraft, aircraft systems, and overall system reliability. Its purpose is to identify real and potential technical problems and come up with a technical or procedural fix.

What does the audit function actually look at?
Simply put, CASP looks at company's maintenance procedures. The very first thing a CASP audit should confirm is that everyone in the maintenance organization, whether it is the big guy at the main base or the part-time mechanic at the line station at Barking Spider, MT, is following the same maintenance procedures in the company manual. CASP procedural audits can be comic book simple, like checking to see if the correct forms are being used and properly filled out at each maintenance base or performing a monthly check to see if the publications and tech data are current and available.
On the other hand, an audit can also be technically complex. For example, performing an in-depth review of all of the maintenance manual procedures for performing a "D" check on a B747-300. The audit can begin with reviewing how work is scheduled, to checking the work turn over procedures between shifts, and ends with reviewing how the aircraft is approved for return to service. If any holes are found, the maintenance manual procedures are changed. Audits also examine the adequacy of equipment and facilities, parts protection and inventory control, and efficiency and competency of personnel. Another important area not to be overlooked is how each organizational element communicates with both the total organization and other individual organizational elements within the airline.
Airlines should not just limit the audits to checking the internal functions of the organization itself. CASP audits must include checking outside repair stations who are doing contract maintenance for the airline and vendors that supply goods and services. The audit should ensure that each contractor is properly authorized, qualified, staffed, and equipped to do the work and that the work is done in accordance with the airline's maintenance manual. CASP audits also look at the data on the number of parts that failed, the reasons behind each failure, and incorporate a fix.

What does the performance analysis section do?
This part of CASP looks at the technical hardware side of the organization. It looks at the daily maintenance problems, deferred maintenance items, pilot reports, mechanical interruption summary reports, engine failures, component failures, and a high number of unscheduled component removals. In short, it looks for red flags, the early warnings of equipment failure or an accident waiting to happen.

How can CASP save money?

Ideally, CASP identifies small maintenance problems before they become big ones. An airline CASP's success will be reflected in a declining number of maintenance delays and component failures each year. Unfortunately, the total money that CASP saves the airline is invisible on the balance sheet. Upper management only sees the money spent to solve small problems or the hassle of revising the manual to fix a faulty maintenance procedure. This is one of the reasons why it is hard for FAA to sell management the advantages of a well run CASP.

What are some of the problems with managing
a casp?

Other than the long suffering individual who is responsible for running CASP for the airline, and not getting the respect that he or she deserves, here are some of the problem areas the FAA has bumped into.

1. The CASP was inadequate right out of the box or over time has become seriously flawed because it has not adapted to the organizational or technical changes in the airline maintenance department. When a CASP cannot evolve with the company, the problem usually began when the CASP was submitted to the FAA at the time of certification because it only met the letter of the law but not its intent.

So what you have is a stunted, hollow document that is badly conceived because not enough time was spent planning or designing an efficient or effective maintenance audit program.

Sadly, I have been the recipient of some of these hollow documents. They impressed me as a Xerox clone, lifted from someone else's internal audit system. I can still remember one CASP. On each page, it had the new airline logo superimposed, but it didn't quite cover the original airline's logo. What do you say to an operator who presents you with such a document. It's the professional equivalent of putting a clean shirt over dirty underwear?

2. CASP location in the company's chain of command is poor. A CASP unit should be an important management tool; a stand alone element of the organization. It should have a direct pipeline to upper management. In some start-up airlines, we find that the directors of maintenance or directors of quality control are usually assigned responsibility for running CASP.

Although legal, this is not really a good idea. In reality, you are asking the director of maintenance or quality control to make an objective analysis of his or her own organizational performance. The odds of getting an objective analysis are the same odds of expecting an objective response when asking a barber if you need a hair cut. No one in his right mind is going to say to his boss that his or her organization has pimples or bad breath. So problems remain hidden, and too often, multiply in the dark.

3. The CASP unit is not allowed to grow with the airline. When airlines expand or merge, the CASP program usually remains the same size. As the airline brings aboard new equipment, line stations, and personnel the CASP unit is overloaded, undermanned, and doomed to fail in its mission. Over a relatively short time, the analysis and surveillance functions wither, and with less and less self evaluations that provide the airline with a whiff of reality, the airline slowly becomes a victim of the "Goldilocks syndrome" or "everything is just right" — until the nightmare arrives.

4. Another problem area is the continuing analysis and surveillance program is no longer continuous. On some air carriers, CASP functions as a hit-and-miss operation. While it is true that the airline's data collection runs continuously, the overall analysis and surveillance that is performed is sporadic.
The way the FAA can tell if an operator has put CASP on hold is simple. We just look at the number and kinds of changes to the airline maintenance portion of their manual over the last few months. If the manual changes are cosmetic in nature and operational procedures pretty much remain the same, but the number of maintenance delays or other indicators are on the rise, then it is obvious to us that the CASP program has become dysfunctional. We then check our calendar and schedule a visit.
5. As previously mentioned, many airlines are very good at obtaining CASP data, sometimes too good. Any airline maintenance department can get more data than it can possibly handle. Too much data creates a drag on the system by entering too much of the wrong information into the CASP database at the expense of losing valuable surveillance and analysis time. The data collected should be a means to an end, not the end unto itself. This excess of data will create a similar problem and a similar FAA response as identified in the previous paragraph.

What can the FAA do if they find a CASP wanting?
The FAA certificate holding office, after finding and documenting that either the airline's CASP audit or performance surveillance sections, or both, is no longer effective, the office will send a letter to the airlines. The letter will identify the CASP problem areas, recommend or require specific changes to the CASP, and usually assign a date when the corrective action must be completed. The FAA usually follows up with an on-site inspection after the carrier has made the necessary changes.

What can the airline do if it doesn't want to change its casp?
Section 121.373 and Section 135.431 both allow the certificate holder to petition the FAA certificate holding office to reconsider the notice to change the CASP. However, the airline must submit the petition to reconsider within 30 days of receiving the FAA's letter. Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the FAA certificate holding office's notice pending a decision by the administrator. In other words, the decision is bumped up to either the FAA office's region or to headquarters.

a final thought
While I spent most of the space available for this article stressing the need to make the CASP a very important part of each airline's maintenance organization, I saved the most important element of the CASP for last.
No matter how well thought out the CASP program is and no matter how well it is positioned within the organization's chain of command, the most important element of the CASP program isthe people who make it work.
Only the best maintenance folks should work in a CASP. Each must possess good analytical skills and boundless curiosity. They should also be hard-nosed cynics blessed with a tad of pessimism. It also helps to have a good helping of audacity.

Each CASP employee needs all of these fine qualities because they have one of the hardest jobs in any industry. Not only do they have to analyze mountains of data and take unwelcome peeks into the organization’s darkest closets, they are usually the poor souls who have to tell the vice president in charge of maintenance that his grand, and very expensive, reorganization plan was somewhat less than successful, and there are alligators waiting for him outside his office.